REMARKS

I. Introduction

In response to the Office Action dated September 25, 2003, claims 1, 2, 5, 8, 9, 12, 15, 16, and 19 have been amended. Claims 1-21 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II. Drawings

In response to the drawing objections, Applicant submits new formal drawings Figures 1-6.

III. Prior Art Rejections

In paragraphs (2)-(3) of the Office Action, claims 1-4, 6-11, 13, and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chen et al., U.S. Patent No. 5,588,098 (Chen). In paragraph (4) of the Office Action, claims 5 and 15-21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chen in view of Isensee et al., U.S. Patent No. 5,734,805 (Isensee).

Applicant respectfully traverses these rejections.

Specifically, claim 1 was rejected as follows:

> Claim 1, Chen et al. discloses direct manipulation of an 3D object displayed in a 3D representation (col. 2, lines 39-40), comprising: displaying a 3D geometric object (col. 5, lines 30-32); displaying a first oriented 3D glyph (a reference indicator such as a cursor that is display on the video display, col. 4, lines 54-61) that provides a direct visual indication of valid movement direction during manipulating 3D object (fig. 11). Chen does not teach a 3D glyph; however, Chen teaches reference indicator to activate a predefined control movement type and direction of available object manipulation (col. 19, lines 63-67; col. 20, lines 40-43; fig. 11). This feature related to a 3D glyph that provides a direct indication of movement direction during manipulation. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the reference indicator as taught by Chen for displaying a 3D glyph that provides a direct indication during manipulation, because it would provide an improved technique for manipulation of displayed 3D objects which provides the user with visual clues (3D glyph or reference indicator) as to the manipulations available (col. 2, lines 59-62).

Applicant traverses the above rejections. None of the cited references teach, disclose, or suggest, the simultaneous display of multiple 3D grip glyphs directly on a geometric object that is being directly manipulated using the grip glyphs. Whenever manipulating an object in Chen, Chen displays a bounding box (see col. 5, lines 10-14). The user then manipulates the bounding box instead of grip glyphs directly on the object itself (as claimed) (see col. 6, lines 13-29). Thus,

contrary to the present invention, Chen fails to provide for direct manipulation of the geometric object itself. Instead, the bounding box is being manipulated.

The Office Action rejects the claims based on the cursors illustrated in FIG. 11 and the description in col. 19, lines 63-67 and col. 20, lines 40-43. Cols. 19 and 20 are the claims which merely providing for "positioning a reference indicator over a displayed object and signaling the computer to activate a control movement mode" and "after signaling the computer to activate a predefined control movement type, change the shape of the reference indicator and thus indicating, to a user of the method, a type and direction of available object manipulations". FIG. 11 is described in col. 6, lines 33-39:

> FIG. 11 shows the pointer changing to a curved arrow indicating rotation manipulations in the case of a rotation active zone selection, to crossed arrows indicating the plane of movement in the case of a translation active zone selection and to an enlarging arrow indicating that dimensions are to be affected in the case of a scaling active zone selection.

As can be seen by this text and FIG. 11, the arrows 1101 of FIG. 11 merely represent a pointer that is displayed when an active zone is selected. In this regard, only one of the arrows 1101 are displayed depending on where the user has activated a control zone. In other words, when a user moves a cursor/pointer in the upper right corner of the bounding box, and selects the active zone (i.e., by holding done the mouse button) of the bounding box in that area, the representative pointer/icon is displayed. Further examining this paragraph in col. 6, lines 30-56, it may be seen that such pointer displays are merely spring-loaded active zones, and the particular icon/pointer/cursor displayed (while a mouse button is depressed) is no longer displayed once the mouse button is released (see col. 6, lines 52-56). Accordingly, the cursors displayed in FIG. 11 are not used to directly manipulate the geometric object being displayed.

Further, as can be seen in FIG. 11, the cursors/icons are merely displayed on the bounding box and not on the actual geometric object. FIGS. 12 and 13 also illustrate how the icons/cursors are merely displayed in connection with the bounding box and no directly on the 3D geometric object that is being manipulated.

Accordingly, Chen fails to disclose various aspects of the present claims. In addition, Isensee also fails to describe these elements. Isensee merely describes an apparatus and method for virtual navigation including a control, which controls the dimensional appearance of a first image on a display (see abstract). Isensee describes how a cursor within an image of arrows 19 may be used to

control the orientation and viewing of a second image such as the house in FIG. 9 (see col. 5, lines 22-40). In this regard, Isensee merely controls how an object or window is being viewed in a window. The arrows in figs 6-8 merely illustrate how the orientation of and in the viewing window may be changed (see col. 2, line 63-col. 3, line 4; col. 6, lines 8-67). In this regard, Isensee completely fails to describe, implicitly or explicitly, the use of a grip that is used to directly manipulate a 3D geometric object. Further, such figures do not even remotely suggest the simultaneous display of two different grip glyphs that may be used to perform direct manipulation. Instead, in accordance with that stated in the Office Action, Isensee merely provides for changing the appearance of a cursor as the cursor is moved around a screen. Thus, such a description teaches away from simultaneously displaying multiple grip glyphs directly on a geometric object.

Moreover, the various elements of Applicant's claimed invention together provide operational advantages over Chen and Isensee. In addition, Applicant's invention solves problems not recognized by Chen and Isensee.

Thus, Applicant submits that independent claims 1, 8, and 15 are allowable over Chen and Isensee. Further, dependent claims 2-7, 9-14, and 16-21 are submitted to be allowable over Chen and Isensee in the same manner, because they are dependent on independent claims 1, 8, and 15, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2-7, 9-14, and 16-21 recite additional novel elements not shown by Chen and Isensee.

IV. Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicant's undersigned attorney.

Respectfully submitted,

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